stream path. This bundle of wavelengths is optically demultiplexed in accordance with the techniques illustrated in Figs. 1 (a) - 1 (c) or any equivalent technique. The demultiplexed wavelengths are labeled "λ 1-4 demuxed".

[39] Each demultiplexed wavelength is forwarded to one of a plurality of wavelength packet header readers 205. The ability to read the packet header information in real time is currently being demonstrated by several companies using all-optical holographic technologies. Such high-speed wavelength packet header readers allow the packet destination to be determined without the necessity for in-line packet storage. Optically readable holographic look-up tables 210 also provide the opportunity for look-up table upgrades via the received optical channel. An optical wavelength packet header reader 205 determines the packet destination loaded on a specific wavelength by referring to the stored look-up table 210 for local customers. If an address is not matched to a stored address, the packet is ignored and passed on through an 1 x 3 optical cross-switch 215, for re-insertion into the ongoing optical (wavelength) channel via the remultiplexer 220. Note the 1 x 3 optical cross switch is only one embodiment. Cross-switches with a greater or lesser number of cross-connects i.e., 1 x 4 or 1 x n are possible for different option configurations.

[40] A distribution node, labeled and indicated by a dotted line surround, of the present invention includes a plurality of wavelength packet multiplexers 225 and the local distribution wavelength packet switches 235 and the distribution transport medium such a FSOC. The local distribution wavelength packet switches 235 and the local distribution wavelength packet router 240 constitute the wavelength packet local distribution subsystem 230, which is further illustrated and described (with other components) in Fig. 3. The distribution node resides in the local distribution routing layer.

[41] If the header packet address does match a local customer address, the switch controller 245 switches the particular customer wavelength packet via a 1 x 3 wavelength (switch location 2) packet cross-switch 215 to the remultiplexer 220.

A 1 x 3 wavelength packet cross-switch is capable of propagating the packet to any one of three paths. In the case of the exemplary embodiment, depicted in Fig. 2, one propagation path is to the remultiplexer 220; a second propagation path is to the local distribution wavelength packet switch 235; and the third propagation path is to the bi-directional Lambda 1 to Lambda "n" converter 250 and thereafter to the wavelength packet cross-connect 265. Such 1 x 3 wavelength packet cross-switches 215 are now available including switches implemented using electro-holographic crystal technology. For purely wavelength routing or customer specific wavelengths, with no packet address information contained within the packet, the same 1 x 3 wavelength packet cross-switch can be controlled via a separate radio control layer to switch/route the customer wavelength at will and for as long as the optical circuit is required. Dedicated customer wavelength routing, using the radio control layer is inherently slower in its switching cycle than is packet-switching, since the wavelength switching/routing cycles are much less frequently performed, if at all. But the same high-speed optical switch used for packet switching can be used for the wavelength routing embodied in this invention, thereby providing flexibility between wavelength and packet routing. A packet header-like address can be attached to a dedicated customer wavelength circuit arrangement for applications lying between dedicated customer wavelength routing and purely packet switching.

[42] The look-up table 210/switch controller circuit 245 assigns switching sequences and output ports that correspond to a specific customer location. While the switch controller circuit 245 switches the specific customer wavelength packets out of the wavelength channel on which the wavelength packets are being transported, the look-up table 210/switch controller circuit 245 sends out in parallel the sequential time slot switching sequence commands to the wavelength packet local distribution subsystem 230, which is responsible for routing wavelength channels or specific time-slot wavelength packets to specific customers. The switch controller circuit 245, governed by the look-up table 210, sets up the sequential time slot switching using, for example, a matrix of electro-holographic switches. Dedicated wavelength channels could also be routed via relatively slow electro-

mechanical MEM micro mirror arrays. Preferably, higher speed switching/routing approaches may be achieved by modified arrangements of existing electro-holographic crystals. Where different customer packets within the same wavelength channel can be switched out of the wavelength channel and directed to a waiting fiber or FSOC telescope. Since the electro-holographic crystals can switch very quickly, or stay switched indefinitely, thereby the crystals can handle both the packet-switching and the wavelength-switching and as such have the operational flexibility to be the preferred configuration.

[43] If the packet header address matches the address of the local node/customer, then the 1 x 3 wavelength cross-switch forwards the data packet to the wavelength packet local distribution subsystem where the local customer 1's wavelength packets are extracted from the ongoing packet stream. The extracted wavelength packets are sequentially time slot switched and forwarded to a local distribution wavelength packet router 240, which may be a micro-electronic mirror system (MEMS) array or an electro-holographic crystal switching array, or other suitable switching technology.

[44] Exiting the local distribution wavelength packet router 240, the customer specific wavelengths and packets are directed to the distribution local link (e.g., FSOC telescope) that has been previously set up and assigned to a specific customer 1's premises 260. This transport may be achieved by a variety of means including millimeter wave radio, fiber and free space technologies. Optical amplification of the out-going packet wavelengths may also be needed. The wavelength-based packets are transported to the customers receiving transceiver and directed photonically or electrically to the customer's NTD at the customer 1's premises 260. The remaining packet traffic, if not directed to a local customer address, is passed on through the local distribution wavelength packet switch 235 and passed on to the wavelength packet multiplexers 225.

[45] The plurality of wavelength packet multiplexers 225 combine multiple sources of wavelengths including the specific customer's and other local customers up-